

In re Patent Application of:

**SMITH**

Serial No. **09/441,709**

Filed: **November 16, 1999**

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**REMARKS**

Applicant would like to thank the Examiner for the thorough examination of the present application. Applicant would also like to thank the Examiner for correctly indicating as allowable the subject matter of dependent Claim 84. The arguments supporting patentability of the claims are presented in detail below.

**I. The Claims Are Patentable**

Independent method Claim 65 has been rejected over the Ichikawa patent in view of the Loughheed patent.

Independent device Claim 82 has been rejected over the Ichikawa patent in view of the Loughheed patent and in further view of the Kaplan patent.

The present invention, as recited in independent Claim 65, for example, is directed to a method for processing a video data stream in an electronic imaging system comprising a memory, and the video data stream comprises a series of pixel values corresponding to pixel sites in the electronic imaging system. The video data stream is filtered in real time for correcting/modifying defective pixel values. The filtering comprises filtering pixel values not stored in the memory using a first filtering algorithm, identifying defective pixel values, storing locations of the defective pixel values in the memory, and filtering the defective pixel values stored in the memory using a second filtering algorithm.

The Examiner has taken the position that FIG. 2 of Ichikawa discloses a method for processing a video data stream in an electronic imaging system comprising a memory 5, 6. The

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Examiner has further taken the position that a video data stream is filtered in real time for correcting/modifying defective pixel values.

The Examiner has also characterized FIG. 2 as disclosing that the filtering comprises filtering pixel values not stored in a memory using a first filtering algorithm 4, identifying defective pixel values, and then storing locations of the defective pixel values in the memory 5. As correctly noted by the Examiner, Ichikawa fails to disclose filtering the defective pixel values stored in the memory 5 using a second filtering algorithm. The Examiner cited the Loughheed patent as disclosing the second filtering algorithm.

The Applicant respectfully submits that even if the references were selectively combined as suggested by the Examiner, the claimed invention is still not produced. Reference is directed to column 5, lines 59-63 of Ichikawa, which provides:

"The image input device 1 images a color LCD panel on which an image of the color R, G, or B that is uniform in its entirety is displayed. An imaging signal which is outputted from the image input device 1 is converted by the image converting means 2 into original image data which are stored in the original image memory 3.

The original image data which are read from the image memory 3 are subjected to smoothing filtering by an average filter or a median filter that is implemented by the digital filter 4, thus producing shading image data that are stored in the shading image memory 5." (Emphasis added).

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As noted above, the Examiner characterized the digital filter 4 as the first filtering algorithm for filtering pixel values not stored in the memory. However, the Examiner has mischaracterized this feature of the Ichikawa patent based upon the fact that the imaging signal from the image input device 1 is converted by the image converting means 2 into original image data and is stored in the original image memory 3 - before applying the digital filter 4. In sharp contrast, the claimed invention recites that the "pixel values not stored in the memory are filtered using a first filtering algorithm."

In addition, since the imaging signal from the image input device 1 is stored in the original image memory 3 prior to being filtered, the process disclosed by Ichikawa is not performed in real time. In particular, the original image data which is inputted is processed to selectively detect only a color stain among luminance irregularities caused by abnormalities of color filters of a color LCD panel. Black defects darker than a surrounding area which contain white defects brighter than a surrounding area are extracted, or white defects which contain black defects are extracted by processing the original image data.

Reference is directed to column 8 lines 6 to 14 of Ichikawa, which provides:

"After regions, regarded as noise, which do not satisfy the above conditions have been removed, the addresses of the regions of the black defects remaining in the region image data are checked, generating detected image data in which the values of corresponding addresses are set to "1".

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The generated detected image data are stored in the detected image memory 16. The above process of detecting a color stain is now finished.

The above process is carried out three times by changing the color displayed by the color LCD panel to R, G, B." (Emphasis added).

Consequently, Ichikawa does not disclose the filtering of the video data stream in real time for correcting/modifying defective pixel values. Rather, it discloses a process for removing permanent defects that is applied only once (for each color) so that future processing can mask the regions which are deemed defective. In sharp contrast, the claimed invention, as recited in independent Claim 65, filters the video data stream in real time for correcting/modifying defective pixel values. The method disclosed in independent Claim 65 is not restricted to the masking of set defects in a manufactured display, but rather adapts to defects in real time. Therefore, the Applicant submits that independent Claim 65 is patentable over the Ichikawa patent in view of the Loughheed patent.

The Examiner also rejected independent device Claim 82 over the Ichikawa patent in view of the Loughheed patent and in further view of the Kaplan patent. The deficiencies discussed in detail above with respect to the Ichikawa and Loughheed patents also apply to independent Claim 82. In particular, Ichikawa does not disclose the real time filtering of a video data stream in an electronic imaging system.

Also, Kaplan is directed to a different field from the field of the invention. As stated on column 1, lines 15-17, the main problem addressed by Kaplan is that noise

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attributable to innate characteristics of photographic film limits the quality of images obtainable from photographic film. Also, column 2, lines 25-30 of Kaplan states:

"What is needed is a process for reducing film noise attributable to random variations in the density of active grains across a film emulsion without requiring prior assumption of film characteristics, and which is therefore less affected by any of the sources of film noise discussed above".

Kaplan is not related to a method for processing a video data stream in an electronic imaging system as recited in independent Claim 82. Therefore, the Applicant submits that independent Claim 82 is patentable over the Ichikawa patent in view of the Loughheed patent and in further view of the Kaplan patent.

In view of the patentability of independent Claims 65 and 82, it is submitted that the dependent claims which recite yet further distinguishing features of the invention are also patentable. These dependent claims need no further discussion herein.

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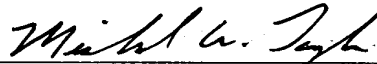
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**CONCLUSION**

In view of the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



MICHAEL W. TAYLOR

Reg. No. 43,182

Allen, Dyer, Doppelt, Milbrath  
& Gilchrist, P.A.

255 S. Orange Avenue, Suite 1401

Post Office Box 3791

Orlando, Florida 32802

407-841-2330

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